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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/668,379	09/24/2003	Kazushige Noguchi	OKI 377	4803
23995	7590	01/14/2005	EXAMINER	
RABIN & Berdo, PC 1101 14TH STREET, NW SUITE 500 WASHINGTON, DC 20005			SUMMONS, BARBARA	
			ART UNIT	PAPER NUMBER
			2817	

DATE MAILED: 01/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/668,379

Applicant(s)

NOGUCHI ET AL.

Examiner

Barbara Summons

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 September 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Drawings

1. Figure 12 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated (see e.g. page 2, lines 9-16). See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.121(d)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.
2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character "1" has been used to designate each of an electrode on a piezoelectric substrate (see e.g. page 13, lines 21-22), a two-port circuit for filtering (see e.g. page 8, lines 14-15) and a connecting wire (see e.g. page 14, line 9); reference character "2" has been used to designate each of an electrode on a package side (see e.g. page 13, line 23), a two-port circuit for impedance (see e.g. page 8, line 25) and a connecting wire (see e.g. page 14, line 10); reference character "110" has been used to designate both a series resonator (see e.g. Fig. 1) and an electrode (see e.g. Fig. 7 and page 13, line 25); reference character "120" has been used to designate both a parallel resonator (see e.g. Fig. 1) and an electrode on a piezoelectric substrate side (see e.g. page 14, lines 10-11); and reference character "121" has been used to designate both a

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parallel resonator (see e.g. Fig. 1) and an electrode on a package side (see page 14, lines 11-12).

It appears that Applicants have confusingly used two reference characters for each element in the figures leading to further rejections below. If the corrections to the specification are numerous, a substitute specification is required.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: "1", "2", "M2" (see e.g. page 10, line 4), "M3", "E1", "E2", "C1" and "C2" (see connecting wires on e.g. page 15, line 16). Reference signs such as S1, S2, S3, P1 and P2 that are understood terminology for series and parallel resonators and L where it is understood to be the symbol for inductance or Z for impedance are not objected to, especially since some of these symbols are need for equations in the specification.

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Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

4. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: "610" and "620" shown in Fig. 4. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

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Specification

5. The disclosure is objected to because of the following informalities: The requested priority to the U.S. provisional application must be added as the first line of the specification after the Title. On page 19, in equation (7), should " Z_{33} " be changed to -- Z_{23} -- (see e.g. page 18, lines 18-19)? If " Z_{33} " is correct, then it must be defined.

Appropriate correction is required.

Double Patenting

6. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

7. Claims 4 and 5 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1 and 8 of U.S. Patent No. 6,677,835. Although the conflicting claims are not identical, they are not patentably distinct from each other because claim 1 of the '835 patent recites the ladder filter and the recited connections of the first, second and third inductors form a π type two-port circuit wherein the structure is the same it is considered to inherently perform the function of providing an attenuation band of a predetermined width and sufficient

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attenuation at the low frequency side of the pass band. Claim 8 of the '835 patent further recites that the inductors are bonding wires.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

9. Claims 1-3 are rejected under 35 U.S.C. § 102(b) as being anticipated by Kuroda et al. JP 9-261002 for which a machine translation is provided.

Fig. 8 of Kuroda et al. discloses a surface acoustic wave (SAW) filter with attenuation poles comprising: a two-port circuit for filtering being a ladder type SAW filter with SAW series resonators 82,84,86 and SAW parallel resonators 81,83,85,87; a two-port circuit for impedance (i.e. bond wires 91-94 and capacitors) between one port being a common connection node of the parallel resonators 81,83,85,87 and another port being ground, the impedance circuit being serially connected; and wherein the impedance of the two-port circuit for impedance is configured to provide an attenuation band of a predetermined width and attenuation on a low frequency side of the pass

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band (see e.g. the abstract, lines 1-2 and Figs. 5-7), and in the case of Kuroda et al. Fig. 8, choosing the number of wires will set the attenuation location/width and amount (see section [0044] and Figs. 9-12). Regarding claims 2 and 3, the impedance is formed of a bonding wire 91-94 that includes a resistance and an inductance (see also, e.g. 16d in Figs. 2 and 3 and section [0036]).

10. Claims 4 and 5 are rejected under 35 U.S.C. § 102(e) as being anticipated by Noguchi et al. U.S. 6,677,835.

Figs. 1 and 11 of Noguchi et al. '835 show the same invention as Fig. 5 of the instant application being a SAW filter with a two-port filtering circuit that is a SAW ladder filter and a two-port circuit for impedance formed of a π type circuit of three impedances formed of bonding wires (Fig. 11) so as to provide an attenuation band of a predetermined width and sufficient attenuation (see e.g. Fig. 8 and col. 8, lines 51-54) on a low frequency side of the pass band.

The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

11. Claims 4 and 5 are rejected under 35 U.S.C. § 102(a) as being anticipated by Noguchi et al. Published Appl. No. US 2002/0089396 A1.

Figs. 1 and 11 of the Noguchi et al. Pub., which is equivalent to the '835 Patent applied above, also therefore shows the same invention as Fig. 5 of the instant application being a SAW filter with a two-port filtering circuit that is a SAW ladder filter and a two-port circuit for impedance formed of a π type circuit of three impedances formed of bonding wires (Fig. 11) so as to provide an attenuation band of a predetermined width and sufficient attenuation (see e.g. Fig. 8 and section [0085]) on a low frequency side of the pass band.

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

13. Claims 6 and 7 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Kuroda et al. JP 9-261002 taken alone.

Kuroda et al. discloses the invention as discussed above, and regarding claim 7, also discloses a capacitance connected in parallel to the bonding wires 91-94 in Fig. 8 (or see also in parallel with wire 16d in Fig. 3), and discloses using four or less bonding wires (section [0044]), which includes two bonding wires. Furthermore, Fig. 8 of Kuroda et al. shows a single electrode being the node connecting all of the parallel resonators (i.e. similar to electrode 13e in Figs. 1 and 2) and shows separate grounds for the wires 91-94 similar to 15c and 15d in Fig. 3, which are separate electrodes on the package as shown in Fig. 2.

However, with regards to Fig. 8, Kuroda does not specifically show two separate ground electrodes on the package and two bond wires using the two separate ground electrodes. But the embodiment of Figs. 1-3 does suggest the single electrode on a piezoelectric substrate connecting parallel resonators and two separate package ground electrodes.

It should be further noted that the Examiner considers the language of claims 6 and 7 to be open, and inclusive of additional elements, so that the two-port impedance circuit of the claims are not limited to only "two bonding wires with three electrodes".

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the SAW filter of Kuroda et al. (Fig. 8), if even necessary, so that the impedance circuit would have included three electrodes (i.e. it already includes two bonding wires 91-94), because Kuroda et al. is silent as to the connection of the bonding wires of Fig. 8 to the package, thereby suggesting to one of ordinary skill that any known form of connection such as that shown in the Figs. 1-3

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embodiment using two ground electrodes, would have been usable therewith, and also because Fig. 8 shows separate grounds for each wire which impliedly suggests a connection scheme with two separate package ground electrodes and one electrode on the piezoelectric substrate as shown in the Figs. 1-3 embodiment.

14. Claims 8 and 9 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Kuroda et al. JP 9-261002 in view of Kandpal et al. U.S. 4,768,079.

Kuroda et al. discloses the invention as discussed above, and also discloses using bond wires with an inductance value of 1nH or less (see section [0042]).

However, Kuroda et al. does not explicitly disclose the resistance value of the bond wires.

Kandpal et al. shows a FET equivalent circuit in Fig. 2A and shows such a circuit with wires making ground connections in Fig. 3A, wherein the wires include an inductance and a resistance. Kandpal further shows in Fig. 3A that for a gold wire having an inductance L of 1.0 nH (see also col. 5, lines 25-27) the typical resistance is 1.0 Ohm which is within the recited range of claim 8. As can be seen by the gate wire to the left in Fig. 3A for gold wires the inductance and resistance are proportional at 100:10 such that a wire with an inductance of 0.01 nH has a resistance of 0.1 Ohm, and therefore, a wire with an inductance of 0.5 nH has a resistance of 0.5 Ohm which is within the recited range of claim 9.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the SAW filter of Kuroda et al. (Fig. 8), if

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even necessary, such that the bond wires 91-94 would have been gold with inductances/resistances of 1.0 nH/1.0 Ohm or 0.5 nH/0.5 Ohm, because Kuroda et al. explicitly suggested using wires with inductances of 1.0 nH or less (see section [0042]) which one of ordinary skill would have known included 0.5 nH, and because Kuroda et al. was silent as to the material and resistance of the wires, thereby suggesting to one of ordinary skill that any well known wires, such as the notoriously well known gold bonding wires of the exemplary teaching of Kandpal, that thus for 1.0 nH and 0.5 nH inherently have resistances of 1.0 Ohm and 0.5 Ohm, respectively, would have been usable therewith.

Conclusion

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Anasako et al. JP 2002-124847 also discloses a SAW ladder filter with a two-port impedance circuit formed with a resistance and an inductance (see R101 and L101 in Fig. 2) that is a bonding wire 108 (Fig. 1) and provides attenuation on the low frequency side of the pass band (see Fig. 6 and the abstract, lines 1-3).

Ehara et al. U.S. 5,905,418 discloses a SAW ladder filter with a two-port impedance circuit ZA (Fig. 11) that is a bonding wire inductance (Fig. 12), and the bonding wire can have a capacitance in parallel therewith since the circuit ZA can be replaced with any circuit from Figs. 30-33 (see col. 10, lines 38-40).

Ushiroku et al. U.S. 6,137,380 improves attenuation at a frequency lower than the pass band and uses bond wire inductance circuits (see Figs. 35 and 37, 39 and 40).

Taniguchi et al. U.S. 6,150,904 improves attenuation at a frequency band below the pass band by using bond wire inductance circuits (see Figs. 1, 5, 8, 10-12, 17, 19 and 20).

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Barbara Summons whose telephone number is (571) 272-1771. The examiner can normally be reached on M-Th, M-Fr.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bob Pascal can be reached on (571) 271-1769. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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BARBARA SUMMONS
PRIMARY EXAMINER